

Amendments to the Specification

Please replace the paragraph at page 1, line 22-page 2, line 2, with the following amended paragraph:

Existing needleless jet injectors for injection of a liquid medical drug create ~~creates~~ a jet stream penetrating the skin of a person to be treated by the inherent force of said stream. Those injectors generally include a high pressure housing having one or more openings for an exit jet stream. Said opening or openings are quite narrow, typically in the order of some tenth of a millimetre. Such openings are very difficult to produce with close tolerances, both rationally and reproduceably, eg by injection moulding of plastic material. Besides, it is difficult to produce openings having such a design and smoothness that the exit jet stream will be coherent and accurately confined to achieve best possible skin penetration effect.

Please replace the paragraph at page 2, lines 3-18, with the following amended paragraph:

PCT application WO 01/05454 is directed to a needleless syringe comprising an injector with nested elements, the inner elements of which having a number of small channels ~~chanels~~ formed on their periphery surfaces for conducting a medical drug from a pressurized chamber, through said number of channels ~~chanals~~ and to the skin of a patient so that a plurality of drug streams penetrate the skin. The mouth of each channel ~~chanal~~ is in contact with the skin and the drug streams are injected directly into the skin, ie without any gaps therebetween. The fineness of said drug streams are determined by the size of the channels ~~chanals~~ and the section area of the channels ~~chanals~~ has a minimal dimension. If the dimension is too small the flow resistance in the channels ~~chanals~~ will be too high and will reduce ~~reduces~~ the flow rate of the drug, jeopardizing the desired penetration effect.

Please replace the paragraph appearing at page 6, line 30-page 8, line 2 with the following amended paragraph:

Said through passage or gap 7 between the aperture wall 12 and said portion 13 of the essentially cone-shaped body 10 serves as a flow confining restriction to develop a high pressure in the medical drug expelled from said housing 1, when using the jet injector. The remaining portion 15 of the essentially cone-shaped body, ie the portion between its portion 13 opposite the aperture wall 12 and its point 14, has a periphery surface 40 receiving or catching the medical drug flowing from the passage 7 and guiding it towards said point 14 to create or form a coherent, thin jet stream emerging from the point 14. At least an area including the point 14 of said body 10 has a concave periphery surface, or concave periphery line when seen in cross-section through the axis, and preferably all of the periphery surface of said body portion 15 between the external surface 6 of the bottom wall 4 and the point 14 is concave, cf FIG. 4. This figure illustrates schematically the flow of said expelled drug. A stream or substreams 16 of a medical drug pressurized in said passage 7 flow(-s) along the periphery surface 40 of said portion 15 attracted to said surface by the so called Coanda effect. When approaching said point 14 the substreams coalesce or are focused before reaching the point 14 creating a substantially homogeneous flow 17 arriving to the point 14 and forming a coherent, thin jet stream 18 emerging from said point 14. The fineness of said jet stream is related to said flow confining restriction, ie the pressure of the stream(-s) 16. The curvature of the concave surface or line can vary somewhat. In order to have a coherent stream it is preferred that the surface is designed so as to give a decreasing angle between the converging streams towards the tip and preferably an almost parallel or substantially parallel flow at the very tip, e.g. by letting the tangential lines of the surface close to the tip

substantially coincide. The converging concave lines of the cross-section can for example be segments of a circle but it is preferred that the curvature changes towards the tip, which can be obtained if instead the lines are shaped as segments of an oval, parabolic or hyperbolic curve or intermediates therebetween. Preferably the segments are mirror images with respect to the axis 11, preferably also arranged to give a decreasing curvature towards the tip and most preferably placed so as to give the abovesaid substantially parallel lines at the tip.

Please replace the paragraph at page 11, lines 5-24, with the following amended paragraph:

In the above illustrated and discussed embodiments the insert 9 is a solid and homogeneous body. However, and according to the embodiment of FIG. 12, said insert 9 is a hollow body confined by a pliable, elastic thin-walled shell 29. The head body 21 of the insert 9 has a diameter smaller than the inner diameter of the housing 1 forming a ring-shaped channel ~~channel~~ 30 therebetween. Preferably the bottom wall 24 of the head body 21 forms an angle with said symmetry axis 11 more acute than the angle between the internal surface 5 of said bottom wall 4 and the symmetry axis to establish a flow path from the housing 1 to the aperture 8. When the medical drug in the housing is pressurized it flows into the space between the head body 21 and the bottom wall 4 causing the wall of said essentially cone-shaped body 10 to deflect inwardly, in the direction of the arrows 31, said point 14 area serving as a pivot, such that a gap 32 is temporarily formed between the cone-shaped body 10 and said aperture wall 12 admitting a medical drug flow therebetween.

Please replace the paragraph appearing at page 11, line 25-page 12, line 11, with the following amended paragraph:

FIG. 13 shows a further embodiment of present invention working with flexible walls. The essential difference between this embodiment and the previous ones is that a central port of the bottom wall 4 is configured ~~configured~~ like a truncated funnel or hopper instead of a plate having a converging aperture. A pliable elastic wall 33 formed as a truncated funnel and converging outwardly from said housing 1 is depending from the bottom wall 4 and is terminated in a bottom surface 34 forming a sharp edge in contact with the essentially cone-shaped body 10. The elastic wall 33 is integrated with the bottom wall 4 and in its upper portion a number of blind grooves or recesses 36 are formed. As in the above discussed embodiments, except the one in FIG. 12, a solid insert 9 with or without a head body 21 is to be positioned inside said wall 33. When pressurized, the medical drug in the housing 1 will flow into said grooves 36 causing the flexible wall 33 to deflect outwardly, in the direction of the arrows 37, the junction between the bottom wall 4 and said flexible wall 33 serving as a pivot. Thus, the lower portion of said wall 33 will be separated from the essentially cone-shaped body 10 temporarily forming a passage 7 therebetween letting the medical drug through.